

FAX RECEIVED

MAR 27 2003

GROUP 3600

Official

Together, the corresponding and registered rows of fins and projection structures create a labyrinth-type seal which presents a high impedance flow path to pressurized steam. However, during start up operation, low frequency modes of operation about the turbine axis tends to cause the tip portions of each row of fins to move radially outwardly and inwardly; in addition, differential thermal expansion caused as the hot working fluid is admitted to the stages and each heats up to operating temperature can exacerbate damage to the packing. To avoid rubbing and damage to such packing ring structures, it is necessary to design the fins and surface projections with sufficient clearance to avoid tip rubbing during start-up operation. This, however, necessarily degrades the quality of the labyrinth seal.

#### IN THE CLAIMS

1. (Thrice amended.) A retractable packing segment for an apparatus that extracts work from the expansion of a gaseous working fluid, said apparatus comprising:

- a rotating shaft disposed in a casing,

- a plurality of packing segments disposed in a ring and centered on an axis defined by said shaft to provide a seal therearound,

- said retractable packing segment comprising:

- a main body having an inner face for sealing against said shaft and

- an outer face supporting a T-shaped extension, said main

- body and said extension coextensively spanning opposing side

- ends, said side ends cut parallel with radii of said axis; and

- at least one brush seal disposed on the inner face of said segment,

- said brush seal having opposing ends, at least one of said

- ends cut non-parallel with radii of said axis.

6. (Thrice Amended.) A retractable brush seal for an apparatus that extracts work from the expansion of a gaseous working fluid, said apparatus comprising:

a rotating shaft disposed in a casing,  
said brush seal in the geometry of a ring formed from a plurality of adjacent abutting packing segments and centered on an axis defined by said shaft to provide a brush seal therearound,  
each said segment comprising:

a main body having an inner face for sealing against said shaft and an outer face supporting a T-shaped extension, said main body and said extension coextensively spanning opposing side ends, said side ends cut parallel with radii of said axis; and;  
at least one brush seal disposed on the inner face of said segment, said brush seal having opposing side ends cut non-parallel with radii of said axis, one of said side ends cut angled to form a tongue extending past the segment side end and the other of said brush seal ends cut at the same angle relative to said segment to provide a groove for accepting a tongue formed by a brush seal on an adjacent packing segment.

#### REMARKS

Entry of the foregoing amendments, and reexamination and reconsideration of the subject application, and in light of the following remarks, are respectfully requested.

Upon reviewing this application for the filing of an appeal, it was noted that the specification at page 3 incorrectly described the seal between the "rotor" and the shaft, which are the same object; typically there is a rotor or shaft that rotates,